

THE MINERAL INDUSTRY OF

CROATIA

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Following the cessation of hostilities in the former Yugoslavia, including parts of Croatia, at yearend 1995, the country began to implement fully a program of economic recovery. Until 1991, Croatia had been the chief producer of natural gas and petroleum and a leading producer of iron and steel and industrial minerals (bentonite, cement, and gypsum) in the former Yugoslavia. From mid-1991 to early 1992, the country was actively involved in a military struggle for independence, which severely damaged its infrastructure. Croatia's minerals industry suffered extensive damage in the aluminum, petroleum, and steel sector enterprises. Additionally, Croatia's routine commercial activities within the former Yugoslavia were disrupted, which led to shortages of needed raw materials.

From 1992 to 1995, the Government's major efforts were to maintain Croatia's independence and a socially acceptable level of employment. To this end, an economic stabilization program was established in 1993 (Financial Times, 1996).

In 1996 and 1997, the restructuring and denationalization of the country's major enterprises emerged as major issues of concern to the Government. Compared with levels in 1997, Croatia's gross domestic product growth rate was expected to reach 6% compared with that of 1996. Industrial production increased by 6.8% during the same period, and the value of exports grew by 3.8% (U.S. Embassy, Zagreb, Croatia, 1998b). Mineral production, which declined sharply following the dissolution of Yugoslavia, stabilized during 1996-97 and appeared to be poised to make a recovery in tandem with the country's reconstruction program. (See table 1.)

The Ministry of the Economy has been directing efforts to accelerate the restructuring of Croatia's industry. Of the 2,750 small- to mid-sized enterprises that were selected for denationalization in 1991, 2,324 enterprises were denationalized by 1997. Large-scale utilities and major producers of mineral fuels, however, were still entirely controlled by the Government, as were most enterprises in the minerals industry. (See table 2.) To increase exports, administrative fees were reduced, as were tariffs on raw materials and equipment that were not produced in Croatia (U.S. Embassy, Zagreb, Croatia, 1998b). The former domestic market of Yugoslavia was an important element in Croatia's mineral trade. With the dissolution of Yugoslavia, commerce with Croatia's former domestic trading partners was classified as foreign trade. Owing to the conflict and attendant international trade embargoes placed on several of these trading partners between 1992 and 1995, Croatia has sought to orient its trade to a greater degree toward markets in Western Europe. In 1996, the principal trading partners were Italy, accounting for 21% and 18.2% of total exports and imports, respectively; Germany, 18.6% and 20.6%; Slovenia, 13.5% and 9.9%; and

Austria, 4.4% and 7.7%.

Boris Kidric Tvornica Lakhir Metala at Sibenik, Croatia's aluminum smelter; the Jardral Alumina Plant at Obrovac; and Top-Tvornica Olovni I Aluminjskih Proizvoda in Zagreb (semimanufactures producer) comprised the country's aluminum industry. Before the war damaged the Boris Kidric aluminum smelter, it produced about 24% of the former Yugoslavia's total aluminum production. Aluminum production in 1997 was only about 47% of the 74,037 metric tons (t) produced in 1990.

Croatia's steel industry also was severely damaged, especially by Zeljezare Sisak d.d. in the central part of the country and Jadranska Zeljezara at Split on the Dalmatian coast. In 1990, the production of crude steel from both enterprises amounted to 423,533 t. Production of crude steel in 1997 was about 45,000 t, which was about a 90% decrease from that of 1990. In 1996, Croatia's steel exports comprised small shipments to Bosnia and Herzegovina, Macedonia, and Slovenia, as well as to France, Germany, Italy, the United States, and several countries in the Middle East.

Croatia produced sufficient quantities of cement, clays, lime, nitrogen, pumice, stone, and other industrial minerals. The demand for industrial minerals by Croatia's building materials producers and construction industry was expected to increase because of postwar reconstruction requirements and the rationalization of the country's economy and infrastructure.

In 1997, Croatia's cement industry consisted of eight plants with capacities to produce about 2.7 million metric tons per year (Mt/yr) of clinker and 2.1 Mt/yr of cement (Cembureau, 1996). Recent facility modernization at these plants was a necessary component of the country's postwar reconstruction of infrastructure (International Cement Review, 1996). German and Swiss companies were major foreign investors in the Dalmacija and the Koromacno cement companies in 1996.

According to spokespersons for the Croatian Cement Association, cement consumption in 1997 was expected to rise by 17%, or 1.55 million metric tons (Mt) compared with that of 1996. Demand for cement in the public works and the residential markets was expected to grow, with about 5% of Croatia's gross domestic product involved in financing restoration and infrastructure development. Also, according to the Croatian Cement Association, 500 kilometers (km) of highways were to have been constructed in 1997 (Rock Products, 1997).

The natural gas and petroleum industry apparently did not suffer sustained damage during the fighting in 1991-92. The production of natural gas and petroleum has continued at somewhat lower levels of output; in 1997, Croatia's output of petroleum was about 25% less than that of 1990. Domestic production of natural gas and petroleum was sufficient to meet

only one-half of the country's needs for these fuels. INA d.d., Croatia's largest state-owned and operated corporation, was responsible for all domestic oil and gas production, as well as research, survey, and exploration work in this field (Cromwell, 1997). Following restructuring Phases I and II, which comprised legal and organizational changes to INA, respectively, Phase III, initiated in 1997, covered the company's financial and business restructuring. Shares of ancillary businesses that were owned and operated by INA, such as insurance companies, hotels, banks, and airlines, were to be transferred to the State Agency for the Rehabilitation of Banks, a separate Government agency. INA would retain only those activities pertinent to its main functions—exploration for and production of natural gas and petroleum, as well as their refining, processing, and marketing. This Agency also was to assume the servicing of foreign loans obtained for the construction of petrochemical facilities at Kutina and Omisalj (U.S. Embassy, Zagreb, Croatia, 1997). In 1997, INA reported a profit of about \$63 million. The company's plans included a pilot operation that would franchise between 80 and 100 gas stations through open bidding and the sale of shares on the London Stock Exchange in mid-1999 (U.S. Embassy, Zagreb, Croatia, 1998c).

INA's domestic exploration program for 1996-97 included 16 test wells in 1996 and 10 wells in 1997. Only 4 of the 16 wells drilled in 1996 found petroleum or natural gas compared with 7 out of 16 wells drilled in 1995. The results for 1997 were to be announced in 1998. Additionally, INA allocated \$15 million for exploration in the northern Adriatic gas fields that the company is exploiting with Agip of Italy (World Oil, 1997).

INA's foreign commercial activities included oil and gas exploration in Albania, Libya, and Russia (Siberia). INA's exploration work in Libya has been conducted since 1996. Late in the year, petroleum was discovered at the Zagreb 1 offshore oil rig in Libyan waters. Initially, the deposit's reserves were estimated to contain 12 Mt of petroleum valued at \$1.6 billion. Further exploration in 1998 could help determine whether or not the deposit's development would be profitable (U.S. Embassy,

Zagreb, Croatia, 1998a). In Albania, INA signed an agreement with Albpetrol that would allow exploration of the Panaje-Vlore block. The agreement called for INA to spend about \$4 million during a 4-year period. In the case of an oil and gas discovery, INA would provide 75% of the cost to develop the deposit, and Albpetrol would contribute 25% (World Oil, 1997).

INA also planned to build a petroleum pipeline extending from the Adriatic coast to Hungary. The proposed pipeline would link with Russia's Druzhba pipeline, forming a bidirectional line that would carry 32 Mt/yr of petroleum (Cromwell, 1997).

Croatia's inland system of ways and communications comprised 29,621 km of railroads, highways, and inland waterways. The railroad system consisted of 2,698 km of 1.435-gauge track, of which about 930 km was electrified. The highway and road system totaled 26,929 km, of which 21,947 km was paved and 4,982 km was unpaved. The country's merchant marine fleet consisted of 56 ships totaling 645,328 deadweight tons. Pipelines for crude petroleum were 670 km in length, and those for refinery products and natural gas were 310 km and 20 km, respectively.

References Cited

- Cembureau, 1996, World Cement Directory (10th ed.): Brussels, Cembureau, v. 1, 539 p., v. 2, 137 p.
- Cromwell, Thomas, 1997. Croatia—a special report: The Washington Times, July 9, 1997, p.3.
- Financial Times, 1996, Supplement-Croatia: London, Financial Times, May 30, p. I-VI.
- International Cement Review, 1996, [Untitled]: International Cement Review, May, p. 64-69.
- Rock Products, 1997, Croatia: Rock Products (Cement Edition), January, p. 21.
- U.S. Embassy, Zagreb, Croatia, 1997, Economic Indicators—Croatia: U.S. State Department Telegram 0730, February 14, 2 p.
- 1998a, Economic Indicators—Croatia: U.S. State Department Telegram 0255, January 21, 2 p.
- 1998b, Economic Indicators—Croatia: U.S. State Department Telegram 0645, February 12, 2 p.
- World Oil, 1997, Eastern Europe: World Oil, v. 218, no. 8, p. 107-110.

TABLE 1
CROATIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/	1993	1994	1995	1996	1997
METALS					
Aluminum:					
Bauxite e/	1,690	1,400	1,500	--	-- e/
Metal, ingot, primary and secondary	25,956	25,993	30,944	32,959 r/	17,800
Iron and steel, metal:					
Ferroalloys:					
Ferrochromium	27,336 r/	31,704 r/	26,081 r/	10,559 r/	24,231
Ferromanganese e/	10,000	562 r/ 3/	--	--	-- e/
Ferrosilicomanganese	40,000	22,071 r/	-- r/	--	--
Steel, crude, from electric furnaces	73,815 r/	63,357 r/	45,373 r/	45,752 r/	68,733 3/
Silver kilograms	500 e/	637 r/	75 r/	--	-- e/
INDUSTRIAL MINERALS					
Barite concentrate e/	1,500	-- r/	-- r/	--	-- e/
Cement thousand tons	1,683	2,055 r/	1,708 r/	1,842,280 r/	2,133,859
Clays: e/					
Bentonite	10,000	10,391 r/ 3/	7,327 r/ 3/	9,728 3/	7,331
Ceramic clay	10,000	10,000	10,000	10,000	10,000 e/
Fire clay, crude	30,000	4,143 r/ 3/	2,475 r/ 3/	5,000	5,000 e/
Gypsum:					
Crude	20,000 e/ r/	-- r/	-- r/	86,060 r/	102,470
Calcined	7,000 e/	-- r/	-- r/	--	1,260
Lime thousand tons	156	169 r/	81 r/	192 r/	208
Nitrogen, N content of ammonia do.	345	311 r/	310 r/	307 r/	331
Pumice and related materials, volcanic tu do.	300 r/	53 r/	39 r/	64 r/	63
Quartz, quartzite, glass sand	23,344	31,031 r/	31,765 r/	43,508 r/	97,563
Salt, all sources	29,643	21,655 r/	21,784 r/	18,820 r/	16,620
Sand and gravel, excluding glass sand thousand cubic meters	2,000 e/	1,845 r/	1,925 r/	1,401 r/	3,853
Stone, excluding quartz and quartzite, dimension stone, crude:					
Ornamental square meters	1,133,873	1,111,271 r/	1,108,655 r/	1,029,437 r/	1,130,728
Crushed and brown, n.e.s. thousand cubic meters	4,160	4,955 r/	5,492 r/	9,099 r/	10,520
Other e/ cubic meters	20,000	20,000	20,000	20,000	20,000 e/
Sulfur, byproduct of petroleum e/	2,000	-- r/	-- r/	--	-- e/
MINERAL FUELS AND RELATED MATERIALS					
Carbon black	17,123	21,468 r/	27,187 r/	26,735 r/	24,214
Coal, bituminous thousand tons	105	96 r/	75 r/	64 r/	49
Coke do.	421	219 r/	-- r/	--	-- e/
Natural gas, gross production million cubic meters	2,068	1,792 r/	1,966 r/	1,786 r/	1,717
Petroleum, crude:					
As reported thousand tons	1,729	1,576 r/	1,500 r/	1,469 r/	1,171,015
Converted e/ thousand 42-gallon barrels	12,800	12,000	12,000	11,000	12,000
Refinery products e/	7,000,000	7,000,000	5,000,000	4,731,974 3/	5,056,289

e/ Estimated. r/ Revised.

1/ Table includes data available through April 1998.

2/ In addition to commodities listed, common clay also was produced, but available information was inadequate to make reliable estimates of output levels.

3/ Reported figure.

TABLE 2
CROATIA: STRUCTURE OF THE MINERALS INDUSTRY IN 1997

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies	Location of main facilities	Annual capacity
Alumina		Jadral, Jadranski Aluminijum	Jadral Alumina Plant	150
Aluminum		Boris Kidric Tvornica Lakh Metala	Smelter at Sibenik, Croatia	75
Do.		Top-Tvornica Olovni i Aluminjskih	Semimanufactures producer at Savska	n/a
Bauxite		Jadral, Jadranski Aluminijum	Mines in at Obrovac, Drnis, and other locations	450
Coal, Bituminous		Istarski Ugljenokopi Rasa	Mines at Labin and Potpican.	500
Cement		Dalmacija Cement	Sv. Juraj plant at Kastel Sucurac	1,300
Do.		do.	Sv. Kajo plant at Solin	750
Do.		do.	Majdan plant at Solin Majdan	780
Do.		Istra Cement International D.D.	Plant at Pula	70
Do.		Tvornica Cementa Koromacno	Plant at Koromacno	420
Do.		Tvornica Cementa Umag D.D.	Cement plant at Umag	480
Do.		Nasicecement D.D.	Nacise plant at Tajnovac	840
Natural gas	million cubic feet	do.	Natural gasfields in Bogsic Lug, Molve, and others	70,000
Petroleum:				
Crude	thousand barrels per day	Industrija Nafte (INA)	Oil fields in Croatia and Slovenia: Benicanci, Zutica, Struzec, Ivanic Grad, Lendava, and others locations	70
Do.	do.	do.	Refineries at Urinj and Rijeka	160
Do.	do.	do.	Refinery at Sisak	150
Pig iron		Metalurski Kombinat Zeljezara Sisak	2 blast furnaces at Sisak	235
Salt	cubic meters	Solana Pag, Solana Ante Festin	Marine salt: Pag Island	13
Steel, crude		SP MK Zeljezare Sisak	Plant at Sisak	401
Do.		Jadranska Zelezjara Split	Plant at Split	120